

Appl. No. 10/648,429
Amdt. Dated November 29, 2005
Reply to Office Action of June 29, 2005

Attorney Docket No. 81872.0050
Customer No.: 26021

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) ~~A substrate-processing method of roughening a surface of a substrate through a dry etching method for fabricating a substrate, said method comprising:~~

placing ~~said the~~ substrate on an RF electrode ~~inside in~~ a chamber;

placing a plate to cover ~~said the~~ substrate, ~~said the~~ plate being provided with a number of opening portions, an open area ratio of the opening portions ~~on in~~ a peripheral portion side ~~of the plate~~ being smaller than an open area ratio of the opening portions in a central portion ~~as viewed in a plane;~~

~~introducing a gas inside a chamber; and~~

~~applying an RF power supply to said RF electrode.~~

2. (Currently amended) The ~~substrate-processing~~ dry etching method according to Claim 1, wherein:

~~said the~~ plate is placed to be spaced apart from the surface of said the substrate by 5 to 30 mm.

3. (Currently amended) The ~~substrate-processing~~ dry etching method according to Claim 1, wherein:

~~said the~~ substrate is ~~one of~~ a plate ~~and or~~ a film member made of one material selected from silicon, glass, metal, plastic, and resin.

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4. (Currently amended) The ~~substrate processing~~ dry etching method according to Claim 1, wherein:

the dry etching method is a reactive ion etching method.

5. (Withdrawn) A substrate processing apparatus that roughens a surface of a substrate through a dry etching method, said apparatus comprising:

a chamber;

an RF electrode provided inside said chamber to place said substrate thereon;

an RF power supply that supplies said RF electrode with power; and

a plate placed over said substrate and provided with a number of opening portions,

wherein an open area ratio of the opening portions on a peripheral portion side is smaller than an open area ratio of the opening portions in a central portion when said plate is viewed in a plane.

6. (Withdrawn) The substrate processing apparatus according to Claim 5, wherein:

said plate is made of one of aluminum and glass.

7. (Withdrawn) A plate used in a substrate processing apparatus that roughens a surface of a substrate through a dry etching method, said plate being placed to cover the surface of said substrate to be processed and provided with a number of opening portions,

wherein an open area ratio of the opening portions on a peripheral portion side is smaller than an open area ratio of the opening portions in a central portion as viewed in a plane.

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8. (Currently amended) A ~~substrate processing method of roughening a surface of a substrate through a dry etching method for fabricating a substrate~~, said method comprising:

placing said the substrate on an RF electrode ~~inside in~~ a chamber;

placing a plate to cover said the substrate while securing a distance from the surface of said substrate, said the plate being provided with a number of opening portions, each opening portion being of a size such that allows a virtual column having a diameter equal to or less than half (1/2) the distance to pass through the opening portion while inhibiting a virtual column having a diameter greater than half the distance from passing through the opening portion;

introducing a gas inside said chamber; ~~and~~

~~applying an RF power supply to said RF electrode.~~

9. (Currently amended) The ~~substrate processing~~ dry etching method according to Claim 8, wherein:

said the plate is placed to be spaced apart from the surface of said the substrate by 5 to 30 mm.

10. (Currently amended) The ~~substrate processing~~ dry etching method according to Claim 8, wherein:

the dry etching method is a reactive ion etching method.

11. (Withdrawn) A substrate processing apparatus that roughens a surface of a substrate through a dry etching method, said apparatus comprising:

a chamber;

an RF electrode provided inside said chamber to place said substrate thereon;

an RF power supply that supplies said RF electrode with power; and

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a plate placed over said substrate and provided with a number of opening portions,

wherein each opening portion in said plate is of a size such that allows a virtual column having a diameter equal to or less than half a distance between said plate and the surface of said substrate to pass through the opening portion while inhibiting a virtual column having a diameter greater than half (1/2) the distance from passing through the opening portion.

12. (Withdrawn) The substrate processing apparatus according to Claim 11, wherein:

the distance between said plate and the surface of said substrate is 5 to 30 mm.

13. (Withdrawn) The substrate processing apparatus according to Claim 11, wherein:

said plate is made of one of aluminum and glass.

14. (Withdrawn) A plate used in a substrate processing apparatus that roughens a surface of a substrate through a dry etching method, said plate being placed to cover the surface of said substrate to be processed and provided with a number of opening portions,

wherein each opening portion is of a size such that allows a virtual column having a diameter equal to or less than half a distance between said plate and the surface of said substrate to pass through the opening portion while inhibiting a virtual column having a diameter greater than half (1/2) the distance from passing through the opening portion.

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15. (Currently amended) ~~A substrate processing dry etching method of roughening a surface of~~ for fabricating a substrate through a dry etching method, said method comprising:

placing ~~said the~~ substrate on an RF electrode ~~inside in~~ a chamber;

placing a plate to cover ~~said the~~ substrate, said plate being provided with a number of opening portions, chamfered portions being provided to the top and/or bottom corners of the opening portions;

~~introducing a gas inside said chamber; and~~

~~applying an RF power supply to said RF electrode.~~

16. (Withdrawn) A substrate processing apparatus that roughens a surface of a substrate through a dry etching method, said apparatus comprising:

a chamber;

an RF electrode provided inside said chamber to place said substrate thereon;

an RF power supply that supplies said RF electrode with power; and

a plate placed over said substrate and provided with a number of opening portions,

wherein chamfered portions are provided to the top and /or bottom corners of the opening portions in said plate.

17. (Withdrawn) The substrate processing apparatus according to Claim 16, wherein:

said plate is made of metal.

18. (Withdrawn) The substrate processing apparatus according to Claim 17, wherein:

said plate is made of aluminum.

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19. (Withdrawn) The substrate processing apparatus according to Claim 16, wherein:

said substrate processing apparatus comprises a reactive ion etching apparatus.

20. (Withdrawn) A plate used in a substrate processing apparatus that roughens a surface of a substrate through a dry etching method, said plate being placed to cover the surface of said substrate to be processed and provided with a number of opening portions,

wherein chamfered portions are provided to the top and/or bottom corners of the opening portion.

21. (New) A dry etching method for fabricating a substrate, comprising:

placing the substrate on an RF electrode in a chamber;

placing a plate to cover the substrate, the plate being provided with a number of opening portions, an open area ratio of the opening portions in a peripheral portion side of the plate being smaller than an open area ratio of the opening portions in a central portion;

wherein a number of compounds are formed by an etching of the substrate during an RF power applying, wherein the compounds are trapped in a space between the substrate and the plate.

22. (New) The dry etching method according to claim 21, wherein:

the plate is placed to be spaced apart from the surface of the substrate by 5 to 30 mm.

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23. (New) The dry etching method according to claim 21, wherein:
the substrate is a plate or a film member made of one material selected from
silicon, glass, metal, plastic and resin.

24. (New) The dry etching method according to claim 21, wherein
the dry etching method is a reactive ion etching method.

25. (New) A dry etching method for fabricating a substrate, comprising:
placing the substrate on an RF electrode in a chamber;
placing a plate to cover the substrate, the plate being provided with a number
of opening portions, an open area ratio of the opening portions in a peripheral
portion side of the plate being smaller than an open area ratio of the opening
portions in a central portion;

wherein a number of compounds are formed by an etching of the substrate
during an RF power applying, wherein the compounds are attached to the surface of
the substrate.

26. (New) The dry etching method according to claim 25, wherein
the plate is placed to be spaced apart from the surface of the substrate by 5 to
30 mm.

27. (New) The dry etching method according to claim 25, wherein
the substrate is a plate or a film member made of one material selected from
silicon, glass, metal, plastic and resin.

28. (New) The dry etching method according to claim 29, wherein
the dry etching method is a reactive ion etching method.

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29. (New) The dry etching method according to claim 1, comprising
introducing a gas in a chamber; and
applying an RF power supply to said RF electrode.

30. (New) The dry etching method according to claim 8, comprising
introducing a gas in a chamber; and
applying an RF power supply to said RF electrode.

31. (New) The dry etching method according to claim 15, comprising
introducing a gas in a chamber; and
applying an RF power supply to said RF electrode.